

REMARKS

General:

Claims 1-37 are pending in this application. Claims 6-7 and 12-14 stand objected to. Claims 1-5, 3-11, 15, 18, and 20 stand rejected. Claims 16-17, 19, and 21-37 stand withdrawn by the examiner.

Claims 6 and 12 have been rewritten in independent form. A clerical error in claim 24 has been corrected. No new matter has been added by this amendment.

Election/restriction:

For the reasons set forth below, claim 1 is believed to be allowable. All of claims 2-37 are dependent from claim 1 or otherwise substantially recite or import the features of claim 1, and are therefore believed to be admissible as dependent claims in the present application. Further discussion of the restriction requirement is therefore believed to be moot.

35 U.S.C. § 102(b):

Claims 1-5, 8-11, 15, 18 and 20 are rejected as being anticipated by U.S. Patent No. 3,721,297 (Challacombe). The examiner contends that Challacombe discloses "a solid gas generator (52) having an outer surface and a central channel" that is unclad on its outer surface except at the ends, where it is clad by the connecting sleeves 32, 34, 36. The examiner is mistaken. The component 52 of Challacombe is molded plastic tube, described as "a solid body 52 of a suitable plastic material such as, for example, polyethylene or polyvinyl chloride, which may be readily molded to the desired shape", col. 4, lines 57-59. The desired shape includes a plurality of combustion chambers 54, 56, 58, 60, 62 and the connecting passages 64, 66, 68, 70, while the actual propellant charge is the powder filling the chambers and connecting passages; see col. 6, lines 1-29, especially lines 2-4 and 11-19. Thus, the tubular plastic component 52 of Challacombe is not propellant charge; and the propellant charge component is not tubular. Moreover, if the plastic tube were considered to be cladding, then no part of the outside surface of the propellant charge would be bare.

The examiner further contends that the ignition enhancer 42, 80, a wrap of plastic sheet explosive, constitutes a secondary propellant charge. The sheet explosives is not part of the gas generator –it is instead used to enhance the explosive force of the blasting cap to provide the initial shock wave rather than the sustained pulse. Even if it were considered to be part of the gas generator, however, this plastic sheet explosive is bare over its entire outer surface.

In addition, Challacombe lacks an igniter arranged to initiate burning of the charge along the whole length of the central channel and the bare part of the outer surface. The blasting cap in Challacombe ignites the plastic sheet explosive by direct contact with the inside surface of the rolled sheet 42, and the spark producing compound in a spark producer. The spark producer in turn ignites one end surface of the propellant charge, not the central channel of the gas generator.

Thus, there is no propellant charge in Challacombe that is tubular and clad on its outer surface, as required by claim 1, nor is there any suggestion of such a component. There is also no igniter arranged to initiate burning of the charge along the whole length of the central channel and the bare part of the outer surface. It is therefore believed that the present invention as claimed in claim 1 is not only new, but also non-obvious over Challacombe, and therefore allowable.

Claims 2-5, 8-11, and 15-22 are dependent from claim 1, and claims 23-37 all recite or import the features that distinguish claim 1 over Challacombe. Without prejudice to their individual merits, these claims are therefore believed to be allowable for the same reasons as claim 1.

In addition, the rolled sheet explosive 42 of Challacombe is not a cylindrical charge “stacked end to end with” any other cylindrical charge, as recited in claim 2, so it can not be that at least one of such charges is clad while another is bare. There is no suggestion that a clad charge is covered by a layer of substantially incombustible material adhering to its surface as recited in claim 3. The sleeve 32 of Challacombe does not “protects the end of” of the wrapped sheet explosive 42, as recited in claim 4. There is no structure in Challacombe that encases a join between two adjacent bare charges, as recited in claim 5.

The examiner's argument on this element is noted, but is irreconcilable with his argument against claim 1, wherein he defines the part of the gas generator 14 that is covered by the sleeve 32 as a clad charge, not as the end of a bare charge.

The examiner does not allege that the features as recited in claims 8-10 are shown by Challacombe. The examiner states that Challacombe's igniter is "in the upper end portion of the gas generator," not within the central channel of a primary charge as required by claims 8-10.

With reference to claim 18, MPEP § 2114 was amended to acknowledge specifically that "features of an apparatus may be recited either structurally or functionally." In the present case, the requirement for a specific rate of burning imposes a structural limitation on the shape of the charge that will be well understood by those skilled in the art. The examiner's position with regard to claim 20 appears to be irreconcilable with his rejection of claim 1, where he purports to identify almost the entire length of the gas generator 14 as bare charge. For these reasons also, it is believed that the present invention, as claimed in at least claims 2, 4, 5, 8-10, 18, and 20 is new and non-obvious over Challacombe.

Allowable subject matter:

Claims 6-7 and 12-14 were indicated as allowable if rewritten in independent form. Claims 6 and 12 have been so rewritten, and are therefore believed to be allowable. Claims 7 and 13-14 are dependent from claims 6 and 12, and are believed to be allowable as claims dependent from an allowable base claim.

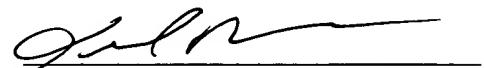
Conclusion:

In view of the foregoing, reconsideration of the examiner's objections and rejections, and an early allowance of at least claims 1-25 are respectfully requested.

Respectfully submitted,

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